epd-norge
Global program operatør

Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

Hobas Sewer Pipe VO with coupling DN1000-1500, PN1, SN10000-20000

Amiblu

The Norwegian EPD Foundation

Owner of the declaration:
Amiblu Technology AS

Product:
Hobas Sewer Pipe VO with coupling DN1000-1500, PN1, SN10000-20000

Declared unit:
1 kg

This declaration is based on Product Category Rules:
CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR 019:2018 Part B for Piping systems use in sewage and storm water systems (under gravity)

Program operator:
The Norwegian EPD Foundation

Declaration number:

NEPD-8628-7678-EN

Registration number:

NEPD-8628-7678-EN

Issue date: 31.12.2024

Valid to: 31.12.2029

EPD software:
LCAno EPD generator ID: 603427

General information

Product

Hobas Sewer Pipe VO with coupling DN1000-1500, PN1, SN10000-20000

Program operator:

The Norwegian EPD Foundation
Post Box 5250 Majorstuen, 0303 Oslo, Norway
Phone: +47 977 22 020
web: www.epd-norge.no

Declaration number:

NEPD-8628-7678-EN

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
NPCR 019:2018 Part B for Piping systems use in sewage and storm water systems (under gravity)

Statement of liability:

The owner of the declaration shall be liable for the underlying information and evidence. EPD Norway shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

Declared unit:

1 kg Hobas Sewer Pipe VO with coupling DN1000-1500, PN1, SN10000-20000

Declared unit (cradle to gate) with option:

A1-A3,A4,C1,C2,C3,C4,D

Functional unit:

6 m pipe segment with coupling

General information on verification of EPD from EPD tools:

Independent verification of data, other environmental information and the declaration according to ISO 14025:2010, § 8.1.3 and § 8.1.4. Verification of each EPD is made according to EPD-Norway's guidelines for verification and approval requiring that tools are i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPD-Norway, and iii) the process is reviewed annually by an independent third party verifier. See Appendix G of EPD-Norway's General Programme Instructions for further information on EPD tools

Verification of EPD tool:

Independent third party verification of the EPD tool, background data and test-EPD in accordance with EPDNorway's procedures and guidelines for verification and approval of EPD tools.

Third party verifier:

Michael M. Jenssen, Asplan Viak AS

(no signature required)

Owner of the declaration:

Amiblu Technology AS
Contact person: Thore M. Klaveness
Phone: +47 928 40 677
e-mail: thore.klaveness@amiblu.com

Manufacturer:

Amiblu Germany GmbH

Place of production:

Amiblu Germany GmbH
Gewerbepark 1,
17039 Trollenhagen, Germany

Management system:

ISO 14001

Organisation no:

916 041 195

Issue date:

31.12.2024

Valid to:

31.12.2029

Year of study:

2020

Comparability:

EPD of construction products may not be comparable if they not comply with EN 15804+A2 and seen in a construction context.

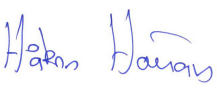
Development and verification of EPD:

The declaration is created using EPD tool lca.tools ver EPD2022.03, developed by LCA.no. The EPD tool is integrated in the company's management system, and has been approved by EPD Norway. NEPDT22

Developer of EPD: Thore Klaveness

Reviewer of company-specific input data and EPD: Petter Åsrud

Approved:



Håkon Hauan, CEO EPD-Norge

Product

Product description:

Filled (VO) Pipe, Hobas Diameter Series, DN800-1500, PN1, SN10000-20000. Liner: Standard, Length: 6 m, Glass: E, Resin: Ortho, Liner Resin: Ortho, with FWC Coupling

Product specification

Glass: E, Resin: Ortho, Liner Resin: Ortho, with FWC Coupling.

A typical composition of the pipes covered by this EPD is the following:

Materials	Value	Unit
Polyester Resin	20 - 25	%
Sand	40 - 50	%
Glass fibers	5 - 10	%
Filler	20 - 25	%
Rubber gasket	0 - 5	%

Technical data:

The list below provides a mass of a functional unit (1m pipe section with the coupling assembled on a 6m pipe unit). This information is used to calculate the A1-A3 and A4 outputs for 1m section of pipeline by multiplication with the values presented in tables.

		SN10000	SN16000	SN20000
DN1000	PN1	150.4	173.0	184.9
DN1100	PN1	172.4	198.2	211.8
DN1200	PN1	215.4	247.2	264.2
DN1280	PN1	233.6	268.0	286.3
DN1400	PN1	291.8	335.3	358.4
DN1500	PN1	320.7	367.9	393.3
DN1500	PN1	320.7	367.9	393.3

Market:

Europe

Reference service life, product

> 100 years

Reference service life, building

-

LCA: Calculation rules

Declared unit:

1 kg Hobas Sewer Pipe VO with coupling DN1000-1500, PN1, SN10000-20000

Cut-off criteria:

All major raw materials and all the essential energy is included. The production processes for raw materials and energy flows with very small amounts (less than 1%) are not included. These cut-off criteria do not apply for hazardous materials and substances.

Allocation:

The allocation is made in accordance with the provisions of EN 15804. Incoming energy and water and waste production in-house is allocated equally among all products through mass allocation. Effects of primary production of recycled materials is allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis.

Data quality:

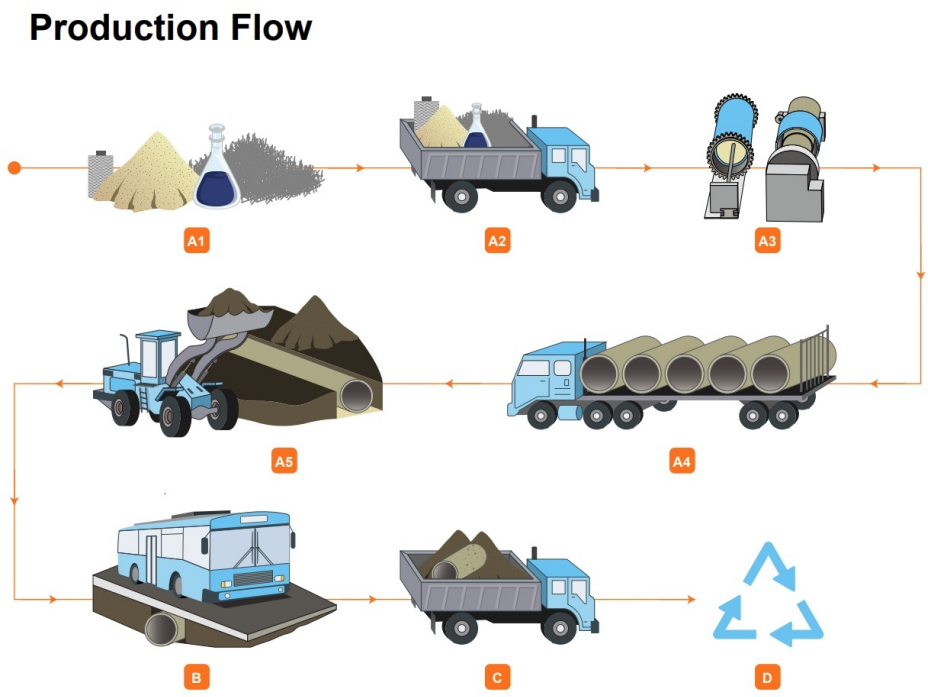
Specific data for the product composition are provided by the manufacturer. The data represent the production of the declared product and were collected for EPD development in the year of study. Background data is based on EPDs according to EN 15804 and different LCA databases. The data quality of the raw materials in A1 is presented in the table below.

Materials	Source	Data quality	Year
Additives	ecoinvent 3.6	Database	2019
Chemical	ecoinvent 3.6	Database	2019
Filler	ecoinvent 3.6	Database	2019
Glass fibre	ecoinvent 3.6	Database	2019
Polyester resin	Modified ecoinvent 3.6	Database	2019
Rubber, synthetic	ecoinvent 3.6	Database	2019

System boundaries (X=included, MND=module not declared, MNR=module not relevant)

Product stage			Construction installation stage		Use stage							End of life stage				Beyond the system boundaries
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X

System boundary:



A1 - Raw materials
Typically including glass fibers, resin, sand, filler, rubber

A2 - Transport of raw materials
Tanker, container transport, sea-transport

A3- Manufacturing
Continuous Filament Winding, Centrifugal Casting, Filament Winding, Hand Lay-up Lamination

A4 - Transport to site
Road transport, sea transport

A5 - Installation
Operation of excavators and earth moving equipment, bedding material, transport

B - Use
Use, maintenance, repair, replacement, refurbishment, operational energy use, operational water use

C - End of life
Excavation, transport, waste processing, disposal

D - Beyond construction works Life Cycle
Reuse, recovery, recycling potential

Additional technical information:

https://www.amiblu.com/

LCA: Scenarios and additional technical information

The following information describe the scenarios in the different modules of the EPD.

LCA study was performed for the 6 m Hobas Sewer Pipe VO DN1200 PN1 SN10000 with the corresponding FWC coupling.

The A2 and A3 scenario represents an average calculated based on 2020 data for the German site specified.

For A4 stage, a transport distance of 800 km is used.

It has been assumed that at the end of the functional life of the piping, the installation is either left in ground or re-lined. Potential relining is considered to be a second life stage, thus, all environmental burdens associated with re-lining are omitted in this declaration.

Transport from production place to user (A4)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, EURO 6 (kgkm)	36,7 %	800	0,043	l/tkm	34,40

LCA: Results

The LCA results are presented below for the declared unit defined on page 2 of the EPD document.

Environmental impact									
	Indicator	**Unit**	A1-A3	A4	C1	C2	C3	C4	D
	GWP-total	kg CO_2 -eq	1,31E+00	1,31E-01	0	0	0	0	0
	GWP-fossil	kg CO_2 -eq	1,25E+00	1,31E-01	0	0	0	0	0
	GWP-biogenic	kg CO_2 -eq	6,44E-02	5,41E-05	0	0	0	0	0
	GWP-luluc	kg CO_2 -eq	7,68E-04	4,65E-05	0	0	0	0	0
	ODP	kg CFC11 -eq	1,60E-07	2,96E-08	0	0	0	0	0
	AP	mol H+ -eq	6,82E-03	3,76E-04	0	0	0	0	0
	EP-FreshWater	kg P -eq	5,87E-05	1,04E-06	0	0	0	0	0
	EP-Marine	kg N -eq	1,27E-03	7,43E-05	0	0	0	0	0
	EP-Terrestial	mol N -eq	1,31E-02	8,31E-04	0	0	0	0	0
	POCP	kg NMVOC -eq	7,08E-03	3,18E-04	0	0	0	0	0
	ADP-minerals&metals[1]	kg Sb-eq	3,61E-05	3,61E-06	0	0	0	0	0
	ADP-fossil[1]	MJ	2,57E+01	1,98E+00	0	0	0	0	0
	WDP[1]	m^3	6,59E+01	1,91E+00	0	0	0	0	0

GWP-total = Global Warming Potential total; GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment: EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

1. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator

Remarks to environmental impacts

Additional environmental impact indicators

Indicator		Unit	A1-A3	A4	C1	C2	C3	C4	D
	PM	Disease incidence	5,59E-08	8,00E-09	0	0	0	0	0
	IRP[2]	kgBq U235 -eq	5,54E-02	8,64E-03	0	0	0	0	0
	ETP-fw[1]	CTUe	3,19E+01	1,46E+00	0	0	0	0	0
	HTP-c[1]	CTUh	1,85E-09	0,00E+00	0	0	0	0	0
	HTP-nc[1]	CTUh	2,72E-08	1,60E-09	0	0	0	0	0
	SQP[1]	dimensionless	4,93E+00	1,38E+00	0	0	0	0	0

PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Soil Quality (dimensionless)

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

1. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator
2. This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

Resource use									
Indicator		Unit	A1-A3	A4	C1	C2	C3	C4	D
	PERE	MJ	1,17E+00	2,83E-02	0	0	0	0	0
	PERM	MJ	0,00E+00	0,00E+00	0	0	0	0	0
	PERT	MJ	1,17E+00	2,83E-02	0	0	0	0	0
	PENRE	MJ	2,57E+01	1,98E+00	0	0	0	0	0
	PENRM	MJ	1,47E-01	0,00E+00	0	0	0	0	0
	PENRT	MJ	2,58E+01	1,98E+00	0	0	0	0	0
	SM	kg	2,88E-03	0,00E+00	0	0	0	0	0
	RSF	MJ	7,22E-02	1,01E-03	0	0	0	0	0
	NRSF	MJ	1,40E-02	3,62E-03	0	0	0	0	0
	FW	m^3	1,72E-02	2,11E-04	0	0	0	0	0

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non renewable primary energy resources used as raw materials; PENRT = Total use of non renewable primary energy resources; SM = Use of secondary materials; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

End of life - Waste

Indicator		Unit	A1-A3	A4	C1	C2	C3	C4	D
	HWD	kg	5,18E-03	1,02E-04	0	0	0	0	0
	NHWD	kg	2,41E-01	9,61E-02	0	0	0	0	0
	RWD	kg	5,78E-05	1,35E-05	0	0	0	0	0

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

End of life - Output flow

Indicator		Unit	A1-A3	A4	C1	C2	C3	C4	D
	CRU	kg	0,00E+00	0,00E+00	0	0	0	0	0
	MFR	kg	0,00E+00	0,00E+00	0	0	0	0	0
	MER	kg	1,41E-02	0,00E+00	0	0	0	0	0
	EEE	MJ	8,35E-03	0,00E+00	0	0	0	0	0
	EET	MJ	1,26E-01	0,00E+00	0	0	0	0	0

CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported energy electrical; EET = Exported energy thermal

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

Biogenic Carbon Content

Indicator	Unit	At the factory gate
Biogenic carbon content in product	kg C	0,00E+00
Biogenic carbon content in accompanying packaging	kg C	0,00E+00

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO2

Additional requirements

Greenhouse gas emissions from the use of electricity in the manufacturing phase

National production mix from import, low voltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing process (A3).

Electricity mix	Source	Amount	Unit
Electricity, Germany (kWh)	ecoinvent 3.6	585,93	g CO2-eq/kWh
Electricity, Poland (kWh)	ecoinvent 3.6	1060,47	g CO2-eq/kWh
Electricity, Romaina (kWh)	ecoinvent 3.6	465,15	g CO2-eq/kWh

Dangerous substances

The product contains no substances given by the REACH Candidate list.

Indoor environment

Not relevant

Additional Environmental Information

Additional environmental impact indicators required in NPCR Part A for construction products								
Indicator	**Unit**	A1-A3	A4	C1	C2	C3	C4	D
GWPIOBC	kg CO_2 -eq	1,32E+00	1,31E-01	0	0	0	0	0

GWP-IOBC: Global warming potential calculated according to the principle of instantaneous oxidation. In order to increase the transparency of biogenic carbon contribution to climate impact, the indicator GWP-IOBC is required as it declares climate impacts calculated according to the principle of instantaneous oxidation. GWP-IOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation.

Bibliography

ISO 14025:2010 Environmental labels and declarations - Type III environmental declarations - Principles and procedures.
ISO 14044:2006 Environmental management - Life cycle assessment - Requirements and guidelines.
EN 15804:2012+A2:2019 Environmental product declaration - Core rules for the product category of construction products.
ISO 21930:2017 Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products.
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